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EXAMINER	
LEUNG, CHRISTINA Y	
ART UNIT	PAPER NUMBER
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/332,046	GERSTEL ET AL.
	Examiner	Art Unit
	Christina Y. Leung	2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 22 August 2003 .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 and 30-48 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 and 30-48 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 22 August 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 33-36 and 45-48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 33 recites "a receiving portion, arranged to receive the test signal from the transmitting portion through the optical path, and to monitor a quality of the test signal received through the optical path, without requiring a conversion of the test signal to or from a non-optical form" in the last lines of the claim. Similarly, claim 45 recites "monitoring a quality of the test signal received at the at least one optical node without requiring a conversion of the test signal to or from a non-optical form" in the last lines of the claim.

Examiner understands from Applicants' specification (pages 10, 11, and 14) that Applicants have disclosed an embodiment of their system wherein an optical test signal loops back along a light path to return to a first node from which it had originated. The looping back alone may be accomplished without requiring a conversion of the light signal to a non-optical form. However, Examiner notes that claims 33 and 45 actually recite that the monitoring of a quality of the test signal does not require such a conversion. Examiner respectfully notes that the

specification does not appear to support these limitations. The test signal disclosed by Applicants, after being looped back in the optical domain, is still received and processed in the electrical domain in order to monitor a quality of that signal. Therefore, the claims in their current form contain new matter that was not described in the original specification.

Claims 34-36 and 46-48 depend on claims 33 and 45, respectively, and are therefore also rejected under 35 U.S.C. 112 for the reasons given above.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 8, 11, 37, 38, and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Fee (US 6,108,113 A).

Regarding claim 1, Fee discloses a wavelength division multiplexed optical system (Figure 9), comprising:

a first optical node including a transponder (including laser 620) having a test signal generator 900 for generating a test signal,

a second optical node including a transponder (including photodiode 660) having a monitoring circuit (including demodulator 920) for monitoring a received test signal; and

a light path 632 through which at least optical communications (such as data signal 602) normally are exchanged between the first and second optical nodes,

wherein the light path is tested by the monitoring circuit monitoring a quality of the test signal in response to receiving the test signal from the first optical node through the light path (column 11, lines 13-55; column 13, lines 1-3).

Examiner notes that although Figure 9 does not explicitly show a wavelength division multiplexed system, Fee discloses that the system may be a WDM system (column 13, lines 45-60).

Regarding claim 37, as similarly discussed with regard to claim 1, Fee discloses a method for operating a wavelength division multiplexed optical communication system (Figure 9), comprising:

transmitting a generated test signal from a first optical node to a second optical node by of a light path 632 through which at least optical communications (such as data signal 602) normally are exchanged between the first and second optical nodes (i.e., from laser transmitter 620 to photodiode receiver 660); and

determining if there is a fault condition in the light path based on a quality of the test signal received at the second optical node (column 11, lines 13-55; column 13, lines 1-3).

Regarding claims 2 and 38, Fee discloses that the quality monitored is a bit error rate (column 13, lines 1-3).

Regarding claims 8 and 44, Fee discloses that the test signal includes predetermined errors (i.e., the errors which are noted and measured at the second node).

Regarding claim 11, as similarly discussed with regard to claims 1 and 37, Fee discloses a wavelength division multiplexed optical system (Figure 9) comprising:

an optical node including a transponder (including laser 620) having a test signal generator 900 for generating a test signal;

client equipment including a monitoring circuit (including demodulator 920) for monitoring a received test signal; and

an optical path 632 through which at least optical communications (such as data signal 602) normally are exchanged between the optical node and the client equipment,

wherein the optical path is tested by monitoring a quality of the test signal generated by the test signal generator of the optical node and received by the monitoring circuit of the client equipment through the optical path (column 11, lines 13-55; column 13, lines 1-3).

5. Claims 1, 3-6, 37, and 39-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Parruck (US 5,265,096 A).

Regarding claim 1, Parruck discloses a combination in a wavelength division multiplexed optical system (Figure 4) comprising:

a first optical node 10b including a transponder having a test signal generator 50 for generating a test signal, and a monitoring circuit (receiver circuitry 20 includes failure detection circuitry; column 5, lines 1-26) for monitoring a received test signal.

Parruck further discloses that the system includes additional nodes, such as a second optical node, each similarly including a transponder and a monitoring circuit as shown in Figure 4. Examiner notes that the test signal generated by the node 10b shown in Figure 4 is not transmitted to the receiving end of the same node 10b but is instead sent to another node that is

similarly constructed. This other node is not explicitly shown in Figure 4, but it would be well understood in the art that the node shown in Figure 4 communicates with other nodes, and Parruck particularly discloses that the nodes in a system communicate alarm/test signals to each other in a system (column 2, lines 38-41). Parruck discloses a light path interconnecting the first and second optical nodes through which at least optical communications normally are exchanged, wherein the light path is tested by the monitoring circuit by monitoring a quality of the test signal in response to receiving the test signal from the first optical node through the light path (column 5, lines 1-26).

Regarding claim 37, as similarly discussed with regard to claim 1, Parruck discloses a method for operating a wavelength division multiplexed optical communication system (Figure 4), comprising:

transmitting a generated test signal from a first optical node 10b (using alarm circuit 50) to a second optical node by of a light path through which at least optical communications normally are exchanged between the first and second optical nodes; and

determining if there is a fault condition in the light path based on a quality of the test signal received at the second optical node (by an element similar to the receiver circuitry 20 shown in Figure 4, albeit at a second node other than node 10b).

Again, a second optical node is disclosed by Parruck but is not explicitly shown in Figure 4; see discussion above with regard to claim 1.

Regarding claims 3, 4, 39, and 40, Parruck discloses that the test signal may be a valid client signal comprising a valid SONET frame (column 3, lines 6-27).

Regarding claims 5, 6, 41, and 42, Parruck discloses that the test signal may be a valid maintenance signal comprising a SONET alarm indication signal, also known as "AIS" (column 4, lines 51-58).

6. Claims 1, 10, 30-36, and 45-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Terahara et al. (US 6,452,701 B1).

Regarding claim 1, Terahara et al. disclose a wavelength division multiplexed optical system (Figures 9A), comprising:

a first optical node ("hub station A") including a transponder having a test signal generator for generating a test signal,

a second optical node ("hub station B") including a transponder having a monitoring circuit for monitoring a received test signal; and

a light path (shown in Figure 9A) through which at least optical communications normally are exchanged between the first and second optical nodes,

wherein the light path is tested by the monitoring circuit monitoring a quality of the test signal in response to receiving the test signal from the first optical node through the light path (column 12, lines 66-67; column 13, lines 1-40).

Although Figure 9A does not explicitly show a test signal generator in hub station A or a monitoring circuit in hub station B, Terahara et al. disclose that the stations (i.e., nodes) include means for transmitting and receiving test signals. Figure 11A shows one embodiment of a test signal generator (including SV signal transmitter 28) and Figure 12 shows a monitoring circuit for monitoring a received test signal (column 15, lines 20-39; column 16, lines 14-42; Figure 16 also shows a test signal generator 66 and a monitoring circuit 65 together in a node).

Regarding claim 30, Terahara et al. disclose that the transponder of the first optical node also has another monitoring circuit for monitoring a test signal received thereby, the transponder of the second optical node also has another test signal generator for generating another test signal, and the monitoring circuit of the first optical node tests the light path by monitoring a quality of the test signal generated in the second optical node and provided to the monitoring circuit of the first optical node through the light path. Figure 9A, for example, shows two test signals, one traveling from hub station A to hub station B, and the other traveling from hub station B to hub station A. Terahara et al. further disclose that each hub station includes a test signal generator and a monitoring circuit (such as shown in Figure 16, for example; column 18, lines 55-67; column 19, lines 1-40).

Regarding claim 31, Terahara et al. disclose that the light path includes at least one loopback mechanism which directs the test signal generated by the test signal generator of one of the first and second optical nodes to the monitoring circuit of a same one of the first and second optical nodes, for monitoring therein. Figure 9C, for example, shows that the test signal may be generated by one of the nodes (hub station A) and looped back to the same node (hub station A, again; column 13, lines 62-67; column 14, lines 1-43).

Regarding claim 32, Terahara et al. disclose that the light path also includes at least one other optical node, and the loopback mechanism is included in the at least one other optical node (Figure 9C shows how the light path loops back through a loopback mechanism in another node such as hub station B).

Regarding claim 10, Terahara et al. disclose an optical line terminal (such as hub station A or B in Figure 9C) comprising:

a transponder having at least a transmitter and a receiver, a test signal generator (SV signal transmitter 28 shown in Figure 11A) for generating a test signal, and a monitoring circuit (such as shown in Figure 12; Figure 16 also generally shows a terminal including a transmitting and receiving elements, although it does not explicitly include the embodiment of Figure 11A) connected to the receiver for monitoring a received test signal at an input of the receiver, wherein the transmitter transmits signals applied to an input of the transmitter from the optical line terminal; and

a switch 27 (shown in the embodiment of Figure 11A), operable for either coupling a signal output by the receiver to the input of the transmitter, or coupling the test signal to the input of the transmitter. Figure 11A shows how switch 27 either couples the received signal to the input of the transmitter (so that the received signal is passed through and output from the terminal again) or couples the test signal from SV signal transmitter 28 to the input of the transmitter (so that a test signal is output from the terminal).

Regarding claim 33, as well as the claim may be understood with respect to 35 U.S.C. 112, Terahara et al. disclose in a wavelength division multiplexed optical communication system having an optical path through which optical communications normally are communicated (Figure 9C), at least one optical node ("hub station A") comprising:

a transmitting portion (such as shown in Figure 11A), arranged to transmit a generated test signal through the optical path, the test signal being an optical signal (column 15, lines 30-35); and

a receiving portion (such as shown in Figure 12), arranged to receive the test signal from the transmitting portion through the optical path, and to monitor a quality of the test signal received through the optical path.

Terahara et al. further disclose that the looping back of the signal to the original node may be performed without requiring a conversion of the test signal to or from a non-optical form. Figure 11A, for example, shows an optical loopback mechanism that may be included in the nodes shown in Figure 9C. Hub station A in Figure 9C may generate a test signal from signal transmitter 28 when the switch 27 in the station is open, while hub station B may optically loop back the signal when switch 27 in that station is closed (column 15, lines 20-38).

Regarding claim 34, Terahara et al. disclose that the optical path includes at least one loopback mechanism (such as the one shown in Figure 11A) which directs the generated test signal transmitted by the transmitting portion towards the receiving portion.

Regarding claim 35, Terahara et al. disclose that the optical path also includes at least one other optical node (such as hub station B), and the loopback mechanism is included in the at least one other optical node (Figure 9C shows how the signal may loop back to hub station A).

Regarding claim 36, Terahara et al. disclose that the at least one other optical node includes an add-drop multiplexer. Figure 9C shows an add drop multiplexer (not explicitly labeled, but shown in dotted lines and corresponding to elements 10 in Figure 9A and shown in detail in Figure 9B) that may be understood as part of a node that also includes hub station B.

Regarding claim 45, as well as the claim may be understood with respect to 35 U.S.C. 112, discussed above, Terahara et al. disclose a method for operating a wavelength division multiplexed optical communication system (Figure 9C) having at least one optical node (h"Hub

station A") coupled in at least one optical path through which optical communications normally are communicated, the method comprising:

transmitting a generated test signal from the at least one optical node through the at least one optical path, the test signal being an optical signal;

receiving back at the at least one optical node the test signal transmitted from the at least one optical node through the at least one optical path; and

monitoring a quality of the test signal received at the at least one optical node (column 13, lines 64-67; column 14, lines 1-43).

As similarly discussed with regard to claim 33, Terahara et al. further disclose that the looping back of the signal to the original node may be performed without requiring a conversion of the test signal to or from a non-optical form. Figure 11A, for example, shows an optical loopback mechanism that may be included in the nodes shown in Figure 9C. Hub station A in Figure 9C may generate a test signal from signal transmitter 28 when the switch 27 in the station is open, while hub station B may optically loop back the signal when switch 27 in that station is closed (column 15, lines 20-38).

Regarding claim 46, Terahara et al. disclose looping back the test signal transmitted from the at least one optical node, towards the at least one optical node through the at least one optical path (Figure 9C shows how the signal may loop back to hub station A).

Regarding claim 47, Terahara et al. disclose that the optical path also includes at least one other optical node (such as hub station B), and the looping back is performed in the at least one other optical node.

Regarding claim 48, Terahara et al. disclose that the at least one other optical node includes an add-drop multiplexer. Figure 9C shows an add drop multiplexer (not explicitly labeled, but shown in dotted lines and corresponding to elements 10 in Figure 9A and shown in detail in Figure 9B) that may be understood as part of a node that also includes hub station B.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 7, 9, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fee in view of Czarnocha et al. (US 6,504,630 B1).

Regarding claims 7, 9, and 43, Fee discloses a system and method as discussed above with regard to claims 1 and 37 above and further including client equipment (such as the computers shown in Figure 1) for providing the main data signals to be transmitted. Fee does not specifically disclose that the light path is tested prior to connecting client equipment to the first and second optical nodes or that the system specifically includes communications blocker. However, it is well known in the art that a user of a system including supervisory/monitoring signals such as disclosed by Fee may test the system before transmitting the main data signals (i.e., before the client equipment is connected or while the client equipment is blocked from communicating), as Czarnocha et al. also specifically teach (column 6, lines 59-67; column 7, lines 1-34).

It would have been obvious to a person of ordinary skill in the art to test the light path prior to connecting client equipment to the first and second optical nodes (or alternatively, while blocking communications from the client equipment) as taught by Czarnocha et al in the system and method disclosed by Fee simply in order for the user to know that the system is functional before proceeding with actual data communications (and so that none of the main data signals are lost).

Response to Arguments

9. Applicants' arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection. Also, Applicants' arguments filed with respect to Parruck have been fully considered but they are not persuasive.

The new grounds of rejection in this Office Action have been necessitated by Applicants' amendments. Regarding claims 1, 10, and 11 in particular, although the current claims appear to be somewhat similar to the original claims, Examiner notes that claim 1 has been amended to explicitly recite that "the light path is tested by the monitoring circuit monitoring a quality of the test signal in response to receiving the test signal from the first optical node *through the light path*" (emphasis added) and is now explicitly directed to a system wherein a test signal and normal optical communications both travel through the same light path. Likewise, claim 11 now also features this limitation. Claim 10 has been amended to recite "a switch, operable for either coupling a signal output by the receiver to the input of the transmitter, or coupling the test signal to the input of the transmitter"; this limitation is substantially different from the one in the original claim 10, since the claim originally recited that the switch connected the output of the *transmitter* to the input of the *receiver*.

Regarding Parruck, Applicants have asserted that Parruck does not disclose the limitations recited in claim 1. Although claim 1 has been amended by Applicants, Examiner has included another rejection of claim 1 over Parruck. Again, Examiner notes that the test signal generated by the node 10b shown in Figure 4 of Parruck is not transmitted to the receiving end of the same node 10b but is instead sent to another node that is similarly constructed. This other node is not explicitly shown in Figure 4, but it would be well understood in the art that the node shown in Figure 4 communicates with other nodes, and Parruck particularly discloses that the nodes in a system communicate alarm/test signals to each other in a system (column 2, lines 38-41).

Conclusion

10. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 703-605-1186. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4700.

JASON CHAN
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